CLAIMS

1. A method for producing expandable beads of a styrene-modified linear low-density polyethylene-based resin comprising, in the order recited, the steps of:

dispersing 100 parts by weight of non-crosslinked linear low-density polyethylene-based resin beads, 30 to 300 parts by weight of a styrene-based monomer, and 0.1 to 0.9 parts by weight of a polymerization initiator relative to 100 parts by weight of the styrene-based monomer into a suspension containing a dispersant;

impregnating the styrene-based monomer into the low-density polyethylene-based resin beads by heating a resultant dispersion at such a temperature that polymerization of the styrene-based monomer does not substantially take place;

performing a first polymerization of the styrene-based monomer at a temperature of higher than (T-8) ℃ and lower than (T+1) ℃ (where T ℃ is a melting point of the low-density polyethylene-based resin beads);

adding a styrene-based monomer and 0.1 to 0.9 parts by weight of a polymerization initiator relative to 100 parts by weight of the styrene-based monomer when a conversion ratio of polymerization reaches to 80 to 99.9%, and performing impregnation of the styrene-based monomer into the low-density polyethylene-based resin beads and a second

polymerization of the styrene-based monomer at a temperature of higher than (T-15) ℃ and lower than (T+5) ℃ (where T ℃ is a melting point of the polyethylene-based resin beads) (wherein a total amount of the styrene monomers used in the first and second polymerizations is more than 300 parts by weight and not more than 1000 parts by weight relative to 100 parts by weight of the low-density polyethylene-based resin beads); and

impregnating a volatile blowing agent during or after the polymerization,

whereby resin components of the expandable beads contain a gel component comprising 2 to 40 wt% of a graft polymer.

2. A method for producing expandable beads of a styrene-modified linear low-density polyethylene-based resin according to Claim 1, wherein the second polymerization is performed at a temperature in a range of higher than (T-8) ℃ and lower than (T+1) ℃.

3. A method for producing expandable beads of a styrene-modified linear low-density polyethylene-based resin according to Claim 1, wherein the linear low-density polyethylene-based resin beads each have a substantially spherical shape or a cylindrical shape having an L/D (where L is a length of each bead and D is a diameter of each bead) of 0.6 to 1.6, and an average bead size of 0.2 to 1.5 mm.

4. Expandable beads of a styrene-modified linear low-density polyethylene-based resin comprising a volatile blowing agent and a base resin, the base resin containing more than 300 parts by weight and less than 1000 parts by weight of a polystyrene-based resin component relative to 100 parts by weight of a non-crosslinked linear low-density polyethylene-based resin component, wherein the base resin contains 2 to 40 wt% of a gel component comprising a graft copolymer of the polystyrene-based resin component and the low-density polyethylene-based resin component.

5. Expandable beads of a styrene-modified linear low-density polyethylene-based resin obtained by the method of Claim 1.

6. Pre-expanded beads having a bulk density of 20 to 200 kg/m^3, obtained by pre-expanding the expandable beads of the styrene-modified linear low-density polyethylene-based resin of Claim 4 or 5.

7. An expanded molded article having a density of 20 to 200 kg/m^3, obtained by expansion molding of the pre-expanded beads of Claim 6.